Data Analysis Report to the City of Chelsea

COVID positive cases:

September 1, 2020, through January 19, 2020

Presented by:
Cristina Alonso and Patrice Basada
Harvard T.H. Chan School of Public Health
Boston University School of Public Health
Metropolitan Area Planning Council

January/February 2021

Table of Contents

Executive Summary and Key Takeaways: 2

Introduction: 4

- COVID among Latinos 4
- Health among Latinx Communities 4
- The impact of COVID in Chelsea 6

Methods: 8

Results: 9

Conclusion and Discussion: 23

Recommendations and Next Steps: 24

Bibliography: 26

Appendix 1: Table 1 Summary 29

Executive Summary and Key Takeaways:

Following a first report that analyzed COVID positive cases in the City of Chelsea from March to August 2020, the Massachusetts Area Planning Council (MAPC) and the Center of Complex Interventions (CCI) commissioned a second report. This analysis included two datasets. The first, from August to November included 2239 cases, down from 3302 cases in the first report. The second database included a targeted analysis of the second wave, which is estimated to have begun November 26th, when cases began to increase significantly and lasted through the first three weeks of January. This second database included 2450 cases, with 893 overlapping. A final total of 3979 cases were analyzed.

A smaller set of variables than those presented in the first report was analyzed to identify trends and frequencies. In this second report, correlations between social determinants of health and outcomes were not carried out due to the lack of variables needed to conduct this level of analysis. Analysis of this second database revealed important findings that can be compared to the first wave of the pandemic in Chelsea to help understand the virus's progression.

1. **During this second period, the virus shifted to a younger cohort. Both positive cases and hospitalizations reflected residents ten years younger (mid 30´s and early 50´s respectively).**
2. **Mortality decreased significantly to nine cases.**
3. **Cases shifted from the retired community to workers. Both essential and non-essential workers were the bulk of all cases. The number of cases increased significantly among children.**
4. **The average number of cases per week did not change significantly over the year. Trends in disease progression follow cold weather and holidays, reflecting the human need to congregate, despite recommendations and warnings on the contrary.**

Public Health Recommendations from the analysis:

1. Continue to support public health messaging that even though one might be young and healthy, Chelsea residents are part of intergenerational families, and all residents must engage in collective care-taking.
2. Continue to support public health messaging that even though one might be young and healthy, Chelsea residents are part of intergenerational families, and all residents must engage in collective care-taking.
3. Public health messaging must continue to emphasize the risks of social interaction.
4. The surge of cases around the holidays signifies the need to create a harm reduction strategy to educate residents on how to gather safely.

5. Residents must have regular and complete access to PPE regardless of their form of employment.
6. All industries must provide PPE, encourage regular testing, and fulfill public health workplace recommendations.
7. At this point, public health messaging should expand to clarify concerns and skepticism around the COVID-19 vaccines. The economy can only be reactivated with mass vaccination, and Chelsea residents should have priority access to the vaccine given the case rate and economic impact in the City.
8. While overall mortality and hospitalizations have decreased, at least nine families were devastated by a life cut short because of the virus. Emphasizing all Chelsea residents' collective responsibility to protect all lives is vital to prevent deaths.
9. During surges in cases, the quality of data collection decreases significantly. Therefore, contact tracing systems must have reserve stuff on hand to cope with increases in cases and a data review process should be activated to ensure reporting from cases investigations and contact tracing.
10. Vaccine policy should be based on local trends and surges. In Chelsea´s case, less than 100 cases have been detected in those over 65 since September. Vaccine priority was given to this cohort, because of their risk of a bad outcome. This policy overlooks the data demonstrating that: 1) COVID most recent transmission is driven in Chelsea by essential workers and 2) the surge among retired folks ended over the summer. Vaccines should also prioritize essential workers who often live in multi-generational housing with elders.

Introduction:

COVID among Latinos

The epidemic has disproportionately impacted the U.S. Latinx population. According to the Centers for Disease Prevention (CDC), Latinxs represent 34.6% of all COVID positive cases, representing only 14% of the U.S. population (CDC, 2020). In comparison, Black non-Hispanic represent 20.8% of cases, Asians 3.6%, Native Americans 1.4%, and other race and ethnic groups 4% of cases.

This over-representation in Latinx COVID-19 cases highlights systemic issues related to work and living conditions, access to healthcare, and the perception of risk and access to COVID-19 prevention information and mitigation strategies. In Massachusetts, Chelsea residents have six times the rate of COVID-19 than the rest of the state. Chelsea is a highly vulnerable city, yet the impact of COVID has surpassed predictions of vulnerability and consequence.

Researchers have stated that COVID-19 is occurring against a backdrop of social and economic inequalities in existing health conditions, including non communicable diseases (NCDs) and inequity in the social determinants of health. The high prevalence of pre-existing conditions, including NCDs, may have exacerbated the incidence and severity of COVID-19 in Latinx communities (Bambra et al., 2020).

Health among Latinx Communities

Latinxs represent 18.3% of the U.S. population, reaching 59.9 million in 2018 (US Census Bureau, 2020). This number often does not include undocumented Latinx who are not counted in the Census. The Brookings Institute estimates that approximately 10-12 million undocumented people are in the U.S., of which half are from Mexico, and 1.9 million are from Central America (Stenglein, 2019). Latinx workers are much more likely to work in low-wage jobs, and in 2017 one in five Latinx workers were paid poverty wages (Mijente Support Network and the Labor Council for Latin American Advancement, 2020).

Before the COVID pandemic, Latinx populations represented the majority of low-wage workers in the U.S., of which only 38.2% have access to health care (Mijente Support Network and the Labor Council for Latin American Advancement, 2020). Since the pandemic, half of Latinx report they or someone they know has either lost their job or taken a pay cut. Undocumented workers

are not counted in unemployment statistics, do not qualify for benefits under the CARES act, and cannot file for unemployment (Mijente Support Network and the Labor Council for Latin American Advancement, 2020). According to CNN, although all demographic groups have experienced significant increases in unemployment, Latinx unemployment has reached nearly 19%, the highest of all demographic groups (CNN, 2020).

Latinx populations are disproportionately affected by NCDs, with Mexican American groups having rates as high as those seen in low and middle-income countries (Reininger et al., 2015). Existing comorbidities, including hypertension, diabetes, asthma, chronic obstructive pulmonary disease, heart disease, liver disease, cancer, cardiovascular disease, obesity, and smoking, are known to increase the likelihood of worse outcomes of COVID-19 (Bambra et al., 2020).

Latinx communities have significantly less access to healthcare services, affected by their acculturation, language, and immigration status. Undocumented folks delay access to healthcare services out of fear of reporting to Federal Inmigraton and Customs Enforcement (ICE). Those who recently arrived in the U.S. or have limited English skills may be unaware of how to access services (Escarce & Kapur, 2006). According to the Office of Minority Health, Latinxs have the highest uninsured rates in the country at 17.8%, compared to 5.9% of the non-Hispanic White population (The Office of Minority Health, HHS, 2019).

Decades of research on social determinants of health have concluded that marginalized communities are at higher risk of infections, even without underlying health conditions. Chronic stress and psychological determinants of health lead to immunosuppression (Bambra et al., 2020). Constant feelings of exclusion, powerlessness, and collective threat affect the immune system and impact the risk of NCDs, and may also impact individual and collective responses to disease and epidemics. We see this through both delays in accessing care and demanding attention to a devastating outbreak for fear of reprisal.

High rates in NCDs reflect inequalities in social determinants of health. Latinx populations chronically suffer from stressful living and working conditions, insecure housing and food, and potential harassment from employers, landlords, and authorities, including ICE (Lopez et al., 2018; Orozco, 2016; Torres et al., 2018). Latinx groups are more likely to work in low-wage jobs where they are exposed to adverse working conditions and lack of workers' protections and rights (Mijente Support Network and the Labor Council for Latin American Advancement, 2020). It cannot be ignored that Latinx groups migrate from countries that have the highest rates of income and health inequity in the world (OECD, 2020; Von Haldenwang, 2005). The transgenerational effect of food and economic insecurity, political conflict, low-intensity

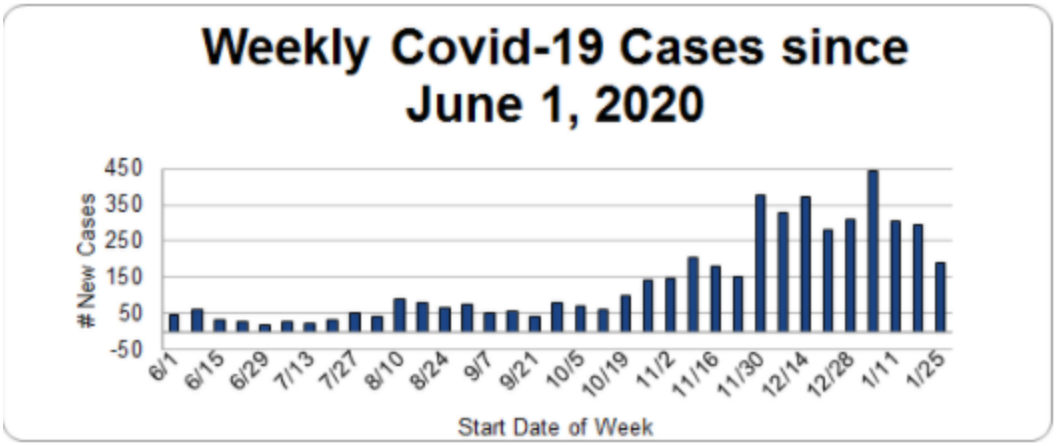
conflicts, revolution and war, and the recent Narco and gang realities in Mexico and Central America must be included in any understanding of the health and wellbeing of Latinx populations (Campbell, 2010; Dudley, 2011; Paris-Pombo, 2016).

The impact of COVID in Chelsea

The city of Chelsea occupies approximately two square miles north of Boston. It has an estimated formal population of 40,000 residents, but informal estimates claim there may be up to 75,000 residents (Editorial Board, Boston Globe, 2020). For the week of June 10, 2020, right after the peak in cases, Chelsea had recorded 2839 cumulative cases of COVID, at a rate of 7537 per 100,000. 7444 individuals had been tested with a positive rate of 38.14%. The state had reported 100,158 cases with a rate of 1437 per 100,000 and a positive testing rate of 15% (Massachusetts Department of Public Health, 2020). During this time, Chelsea had a COVID-19 rate almost six times higher than the state average, and that many of those being tested are positive, indicating low access to testing (Barry, 2020). In short, the community of Chelsea was the hardest hit in Massachusetts.

By the week of September 30, Chelsea had registered a cumulative total of 3596 cases, with 99 cases being registered in the second half of September. The positivity rate had reduced to 2.75%, indicating that both the absolute number of cases had decreased while the number of people being tested has significantly increased in the last few months (Massachusetts Department of Public Health, 2020). However, continued analysis is important to ensure that this trend continues into the winter.

As of February 4, 2021, the Chelsea government website stated 7682 positive cases with 212 deaths. Cases surged at the end of November from an average of less than 100 cases a week to over 250 cases a week. This surge ended mid-January.



Source: Chelsea Coronavirus Updates website: https://www.chelseama.gov/COVID (02/07/2021)

Chelsea holds many of the reasons mentioned above why the COVID epidemic spread so rapidly and had such a severe impact in the city. Many Chelsea residents are immigrants from Central America, are undocumented, and are low-wage or essential workers. Many of these residents live in overcrowded housing, placing them at high risk for COVID transmission (The Boston Globe, 2020). A community impact survey conducted through La Colaborativa in 2020, found that ten percent of residents lack health insurance (Alonso, 2020). In addition, policies such as the expansion of "Public Charge" during the Trump administration, increased fear of accessing social protections and services among undocumented immigrants and those looking to change their status (Lopez et al., 2018; Torres et al., 2018).

To continue monitoring the impact of COVID-19 on Chelsea, we conducted a second analysis of data encompassing September to December 2020. These data were compared to results from March to August. Data analysis was carried out during January 2021.

Goal: To conduct a second analysis to understand and compare the impact of COVID-19 in Chelsea.

Methods:

The datasets were accessed by the city of Chelsea Health Department and provided by the Public Health Department through a secure and private email server to protect privacy. The first step involved cleaning and recoding the dataset for consistency, relevance, and efficiency in the data analysis. Eleven variables were analyzed that included:

- Date of positive test result
- Hospitalized
- Outcome
- Age
- Ethnicity
- Gender
- Hispanic
- Occupation
- Race

Data was analyzed using R statistical programming. Frequency tables and histograms were used for frequency data. Results are presented through a comparative approach where results from September to December are presented in black, and results from March to January are presented in red.

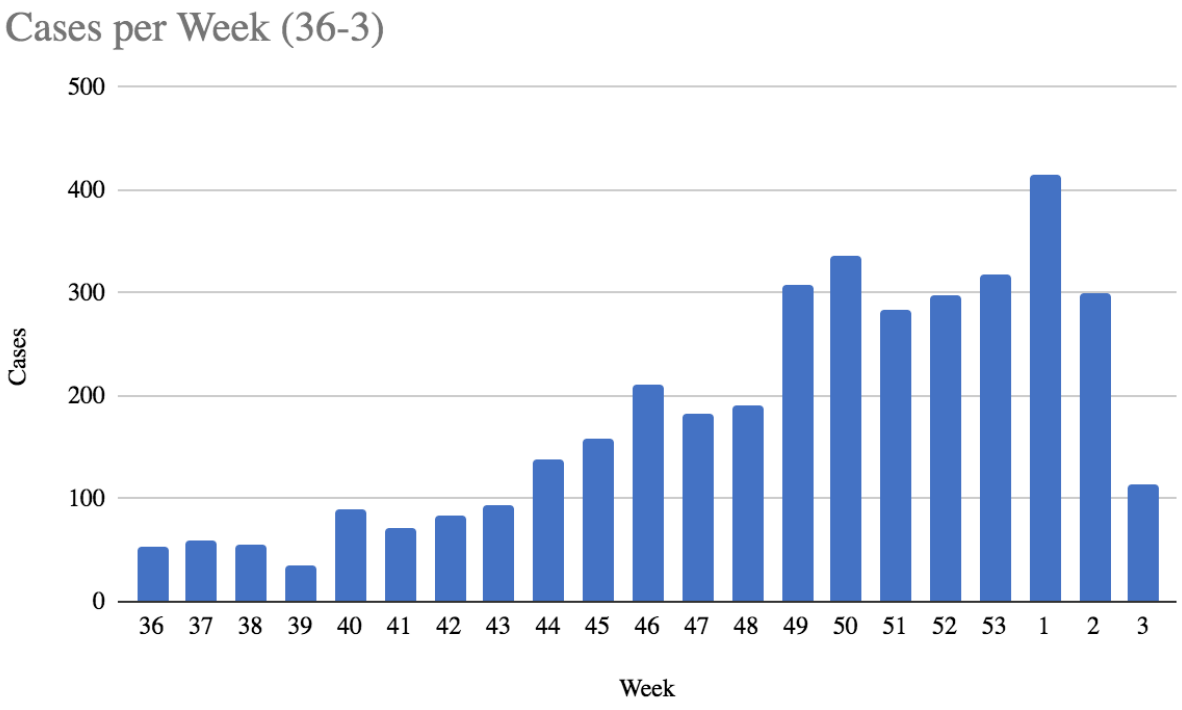
There is a discrepancy in outcomes and cases between the first and second database. This is due to different cutoff times for data analysis. Outcomes are collected in retrospect and, therefore cases that have not completed two weeks post-infection may not be closed out in the system. In addition, delays in data management may lead to differential count, for example, in the first database 173 cases were identified in week 51. However, in the second database, this number had increased to 284. These variations are to be expected.

A note about data collection: The total number of cases in the data analysis performed by the authors total 5099 from March 7 to January 16 2021. 3 weeks of data are missing for August, and due to the date of data collection cut off, two weeks of data are missing for the last two weeks of January. Chelsea reported 7682 cases on its official website. Therefore, there is a discrepancy of 2583. These cases cannot be accounted for in the missing five weeks of data, as they would average over 500 cases a day, which has never been the case for Chelsea.
Therefore, it is safe to say there is a large discrepancy on the centralization of cases, which reflects again on outcomes and analysis.
This discrepancy exists in mortality data, where the official Chelsea website reports 212 and databases report 151.

Results:

1. **Total number of cases Sept-Dec: 2239**
   Total number of cases Nov 26-Jan 19: 2450
   a. **Total number of cases March-Aug: 3302**

The total number of cases from September 1, 2020 to January 16, 2021 is 3797. The first report covered 20 weeks (weeks 14-34), averaging 165 cases a week. This second period covers 15 weeks (weeks 36-51), averaging 149 cases a week. While this is a slight decrease in cases, it does not reflect the outpour of public health messaging, distribution of PPE, lockdown, and social isolation measures. Cases remained quite low during September and October. However, beginning the week of October 26, cases began to increase significantly, reflecting both cold weather and cultural celebrations such as Halloween (Dia de Muertos), Thanksgiving, and Christmas, which are important traditions in the US. Cases skyrocketed from November 6 to January 15th, 2021.



By focusing on weeks 49 of 2020 to 3 of 2021, we can appreciate the immediate impact of the holidays on disease transmission.

Recommendation: It is evident that families and friends gathered during the holidays. Therefore, it is insufficient to tell residents to "not gather." Harm reduction education must be implemented explaining evidence-based protocols on how to gather safely. These can include, prior testing, mask wearing, opening windows, sitting 6 feet apart, taking turns eating, and limiting the time together. Ignoring this reality will contribute to future surges (Easter, Mother´s Day, Graduation).

2. Missing Data:

The table below details the number of cases recorded for each period and the percentage of incomplete data for those cases. Details are provided by variables (fields) included in the case reporting dataset.

Variable	Sept-Dec	Nov-Jan	March-August
Outcomes:	486 (21.7%)	1714 (70%)*	1711 (51.8%)
Race:	140 (6.3%)	209 (8.5%)	570 (17.3%)
Ethnicity:	256 (11.4%)	1327 (54.2%)	3292 (99.7%)
Hispanic:	258 (11.5%)	230 (9.4%)	642 (19.4%)
Sex:	4 (0.2%)	6 (0.2%)	39 (1.2%)
Hospitalization:	403 (18.0%)	1605 (65.5%)	1945 (58.9%)
Employment:	454 (20.3%)	1740 (71%)	2550 (77.2%)

The quality of data collection had improved since the first report and recommendation to monitor data collection quality. However, starting with the second surge in cases, data collection decreased significantly. While the outcome variable may remain open for two weeks post-testing, key variables such as ethnicity, and employment must be collected during the positive result call and initial contact tracing interview. Again, missing data reflect both a lack of human resources to make the call, inadequate training of contact tracers and inadequate monitoring of data collection. In addition, missing data creates important limitations in assessing frequencies and trends. For example, missing data in the ranges of 54.2% for ethnicity, 65.5% for hospitalization or 70% of outcomes severely limit the findings.

Recommendation: It is essential that reserve staff be pulled in during surges, particularly when these are predictable to coincide with weather or holidays. All staff need continuous education on completing data forms and means taken to understand when data is incomplete. Data quality must be continuously monitored by both the Community Tracing Collaborative (CTC) and the Chelsea Department of Public Health.

3. **Demographic and Case Information:**
   a. Average age by gender Sept-Dec:

Female - 36.5 years
Male - 36.2 years

   i. Average age by gender Nov-Jan:

Female - 37.9 years
Male - 37.3 years

   ii. Average age by gender March-Aug:

Female - 44.4 years
Male - 43.9 years

The average age of cases has decreased by eight and six years.

   b. Average age by outcome Sept-Dec:

Died - 70.5 years
Recovered - 34.6 years

   i. Average age by outcome Nov-Jan:

Died - 67.6 years
Recovered - 36.4 years

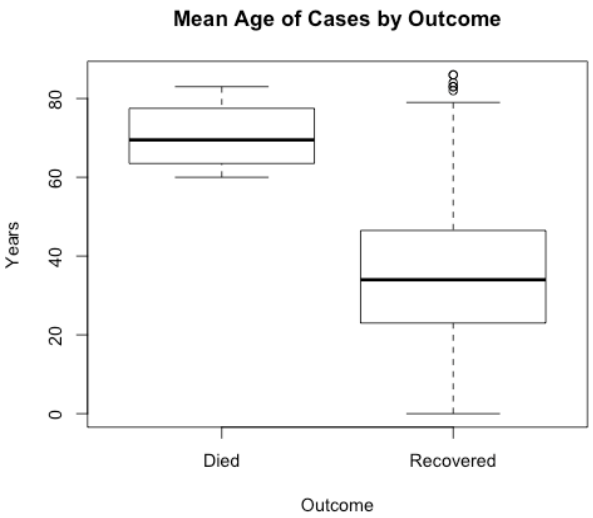
   ii. Average age by outcome March-Aug:

Died - 80.7 years
Recovered - 43.2 years
LTF - 49.4 years

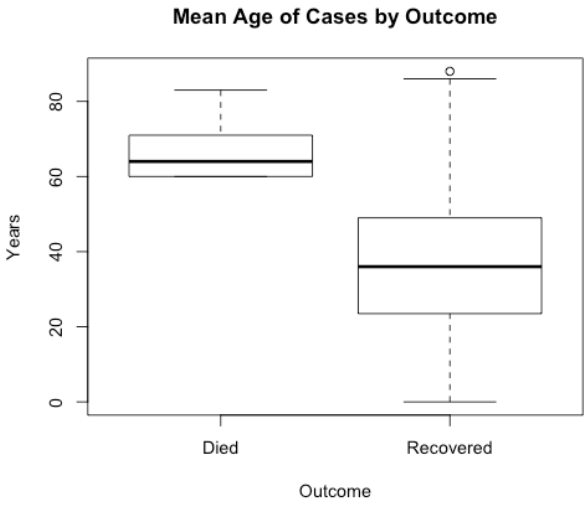
The average age of death has decreased by ten and thirteen years. Because outcome data were missing on 70% of cases during the second wave, we do not know if more deaths were

recorded, and the total number of deaths is quite small (9 in total). However, it is concerning that the average age of death is decreasing.

Average Age of cases Sept-Dec:



Average Age of cases Nov-Jan:



Average age of cases March-August:

Comparing the average age of cases by the outcome, the virus has impacted a younger cohort in all outcomes for this second analysis period.

c. Average age by hospitalization Sept-Dec:

Yes - 51.5 years
No - 34.1 years

i. Average age by hospitalization Nov-Jan:

Yes - 51.3 years
No - 36.3 years

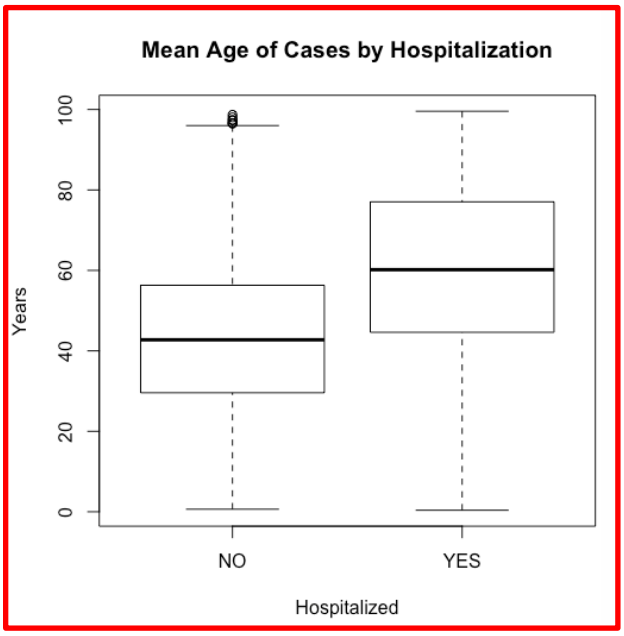
ii. Average age by hospitalization March-Aug:

Yes - 58.7 years
No - 44.4 years

Average Age by Hospitalization Sept-Dec:

Average Age by Hospitalization Nov-Jan:

Average Age by Hospitalization March-Aug:



The average age of hospitalized patients also decreased slightly, following the overall trend that the virus affected a younger cohort.

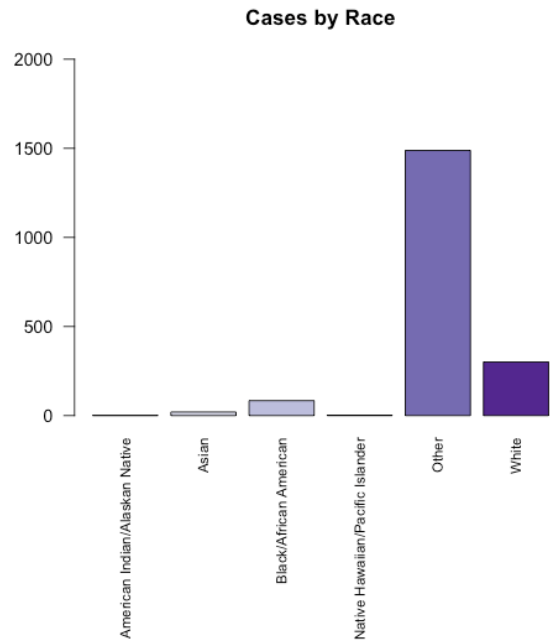
Recommendation: Continue to support public health messaging that even though one might be young and healthy, Chelsea residents are part of intergenerational families, and all residents must engage in collective caretaking.

d. Cases by race/ethnicity:

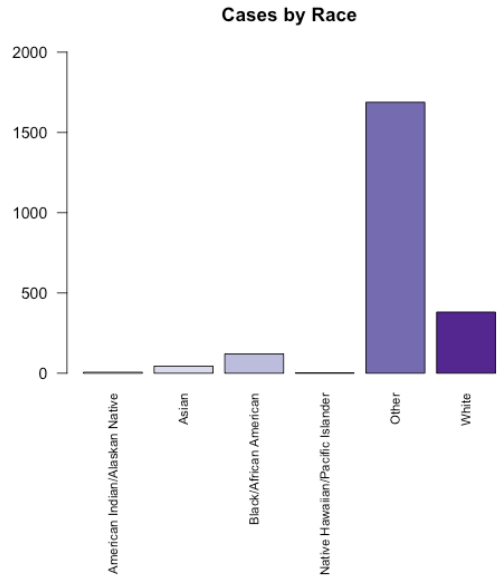
Race	Sept-Dec	Nov-Jan	March-Aug
American Indian or Alaskan Native	1 (0.0527%)	6 (0.27%)	3 (0.1%)
Asian	20 (1.05%)	44 (1.96%)	16 (0.6%)
Black or African American	84 (4.43%)	120 (5.35%)	105 (3.7%)
White	301 (15.9%)	381 (17.0%)	634 (22.2%)
Other	1488 (78.5%)	1688 (75.3%)	1974 (69.1%)

Hispanic	Sept-Dec	Nov-Jan	March-Aug
Yes	1543 (78.6%)	1611 (72.6%)	1938 (59.7%)
No	421 (21.4%)	609 (27.4%)	722 (22.2%)

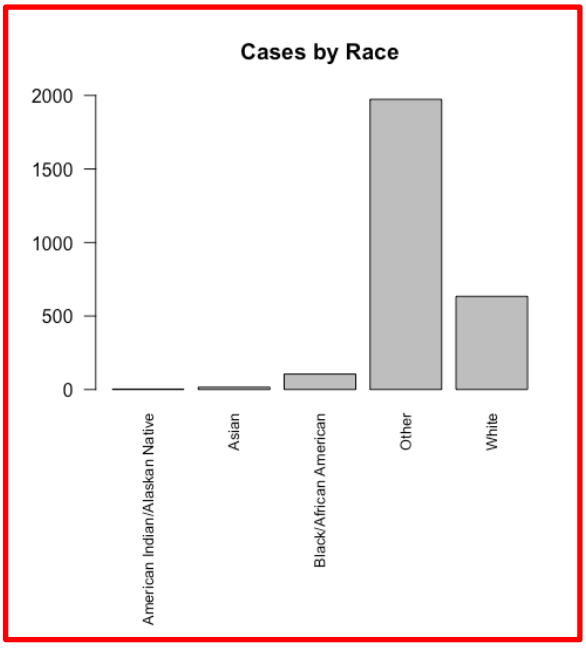
Bar Chart of Cases by Race Sept-Dec:



Bar Chart of Cases by Race Nov-Jan:



Bar Chart of Cases by Race March-Aug:



The majority of Chelsea residents are Hispanic; therefore the proportion of Hispanics affected by COVID-19 did not shift in this second period.

4. Employment:

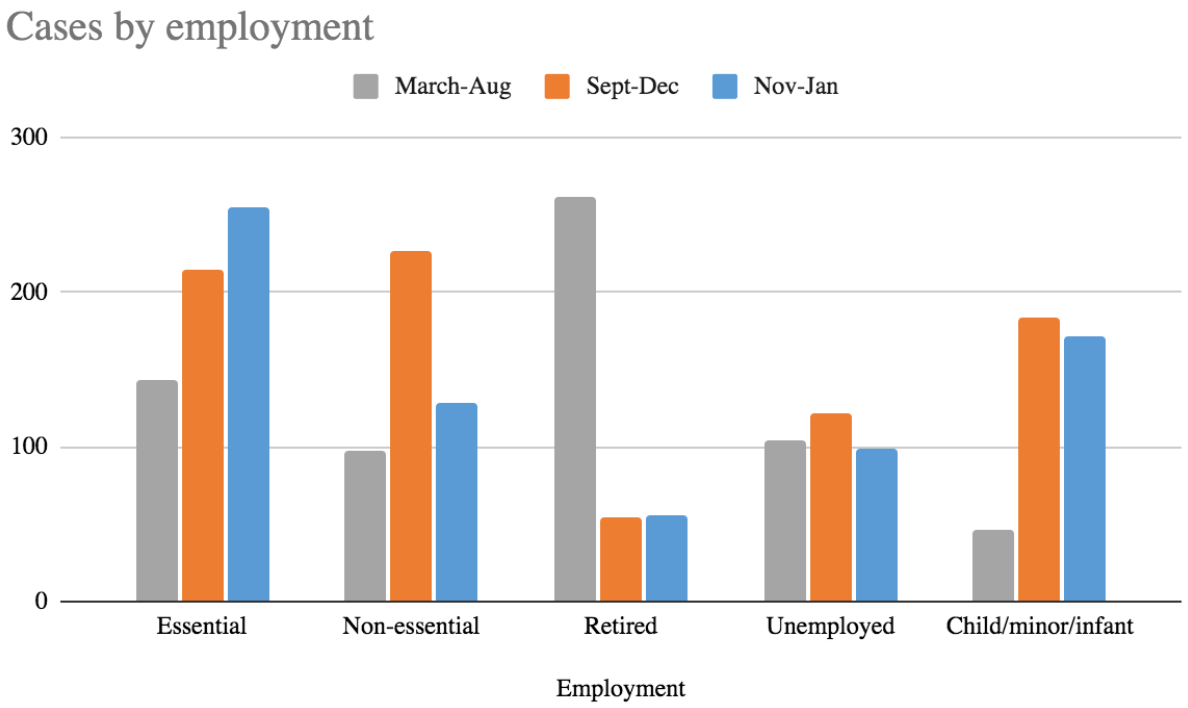
a. Cases by type of employment:

Employment	Sept-Dec	Nov-Jan	March-Aug
Essential	215 (26.9%)	255 (35.9%)	143 (19.0%)
Non-essential	226 (28.3%)	128 (18.0%)	97 (12.9%)
Retired	55 (6.9%)	56 (7.9%)	262 (34.8%)
Unemployed	121 (15.1%)	99 (13.9%)	104 (13.8%)
Child/minor/infant	183 (22.9%)	172 (24.2%)	46 (6.1%)

During this second period, the bulk of the cases shifted from retired folks to workers. This shift probably reflects changes in infectious disease management in assisted living facilities. The proportion of cases impacting non-essential workers increased dramatically, reflecting perhaps a lack of risk perception among individuals and industries that are not essential. A second important shift was in the number and proportion of children infected by the virus. The proportion of unemployed people with the virus did not shift significantly. An important change happened during November-January where the majority of infections shifted to essential workers, both in number of cases and in percentage. This may reflect a shift in employment status, with more people being employed in essential jobs during the holidays. . It does however likely reflect important gaps in access to PPE, safety among essential workers and consistent workplace support for adherence to behaviors that reduce transmission. Cases increased to an average of 28 a week among essential workers. In contrast, a significant improvement occurred among non-essential workers whose caseload decreased significantly.

The total number of cases among employed adults in the fall was 441, 200 more cases than the first period. This concerning trend helps to explain the second wave of infections that affected Chelsea. Another concern is that a quarter of infections are now among children.

Recommendation: Public health messaging must continue to emphasize the risks of social interaction.
Residents must have regular and complete access to PPE and regular regardless of their form of employment.
All industries must provide PPE, encourage regular testing, and fulfill public health workplace recommendations.


Cases by employment
March-Aug
Sept-Dec
Nov-Jan
300
200
100
0
Essential
Non-essential
Retired
Unemployed
Child/minor/infant
Employment

b. Among those hospitalized:

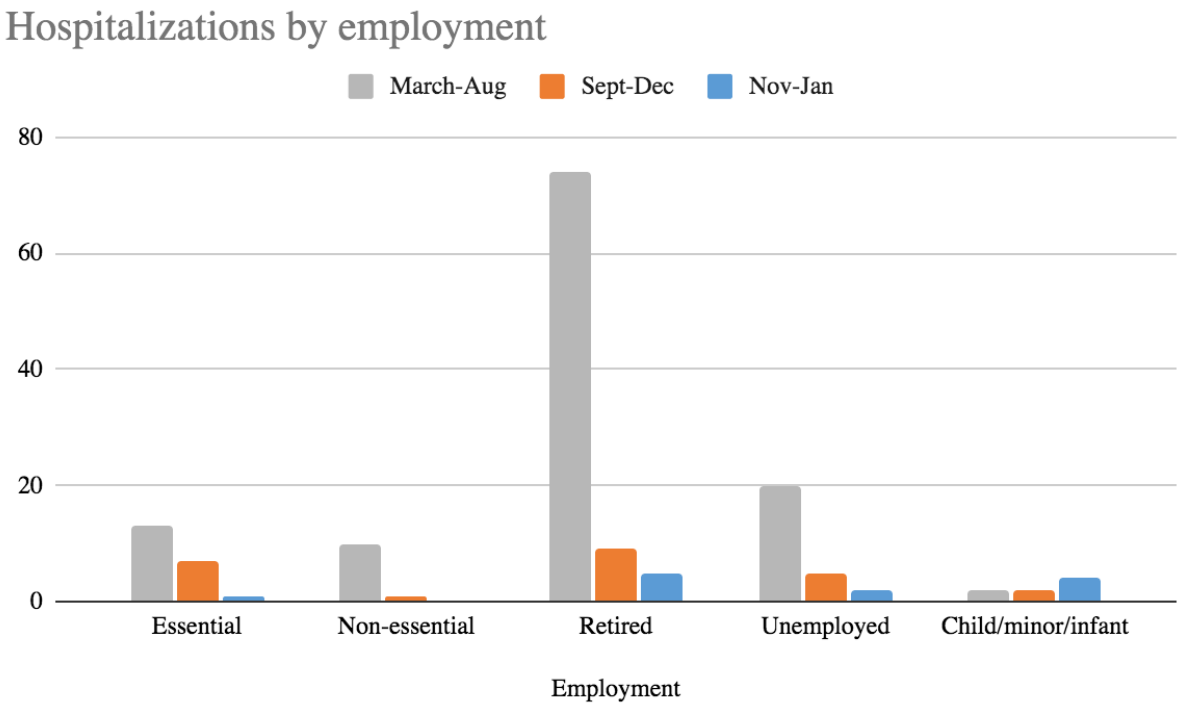
Employment	Sept-Dec	Nov-Jan	March-Aug
Essential	7 (29.2%)	1 (8.3%)	13 (10.0%)
Non-essential	1 (4.2%)	0 (0%)	10 (7.7%)
Retired	9 (37.5%)	5 (41.7%)	74 (56.9%)
Unemployed	5 (20.8%)	2 (16.7%)	20 (15.4%)
Child/minor/infant	2 (8.3%)	4 (33.3%)	2 (1.5%)

Although cases increased significantly among non-essential workers, the proportion of hospitalized cases decreased to one hospitalization in Sept-Dec and none from Nov-Jan. The decrease may also reflect the trend of younger, healthier residents being infected. However, regardless of the outcome, the virus continues to be transmitted and puts residents at risk.

Although the proportion of essential workers increased, the change only reflects the decrease in hospitalized cases among retired folks and the unemployed. The total number of hospitalizations decreased significantly from 119 in the first period to 24, reflecting an important achievement. For the second period, the total number of hospitalizations was 12. However it is important to note that outcomes were only reported on 30% of cases, therefore the number of hospitalizations should be reassessed when case management is completed.

Despite the overall decrease in hospitalizations, the high case rate continues to impact the economy, education, and mental health of Chelsea residents. Therefore, although the impact of COVID on people´s health may have decreased, the impact on society's social and economic aspects has worsened.

Recommendation: At this point, public health messaging should expand in order to clarify concerns and skepticism around the COVID-19 vaccines. The economy can only be reactivated with mass vaccination, and Chelsea residents should have priority access to the vaccine given the case rate and economic impact in the City.



5. Mortality

There was a total of nine reported cases where the outcome was death. It is important to note database discrepancies, where the total deaths from extracted data reach 151, whereas the Chelsea´s website reports 212. There are 61 deaths that remain unaccounted for.

While outcomes from 70% of cases from November to January remained incomplete, a final analysis may reveal more deaths. This is an important decrease from the first period that accounted for 142 deaths. In this second cohort, seven were men, and two were women. four were retired, one was a teacher and four did not have a profession accounted for. Their ages ranged from the youngest at 60 to the oldest at 83. Statistical analysis cannot be done on a cohort of this size.

a. Mortality related to gender March to August:

	Female	Male
DIED	69	73
RECOVERED	750	662

Recommendation: While overall mortality has decreased significantly, as have hospitalizations, at least nine families were devastated by a life cut short because of the

virus. Emphasizing all Chelsea residents' collective responsibility to protect all lives is essential to prevent deaths.

Conclusion and Discussion:

This second analysis provides insight into the development of the pandemic over the course of the year. The following trends are important to highlight:

- Significant improvements have occurred in data collection and contact tracing.
- Surges in cases decrease data collection and quality and require improved capacity.
- Despite public health interventions to decrease transmission, significant holidays such as Halloween, Thanksgiving, and Christmas led to dramatic increases in transmission, demonstrating that residents opted to spend these holidays together despite warnings.
- The average age of infection and hospitalization has decreased, impacting younger people.
- Hospitalizations and deaths have decreased, reflecting both a younger cohort, and improved understanding of the virus.
- The average number of cases per week did not change significantly over the year.

Recommendations and Next Steps:

The analysis provided insight into the quality of data collected on COVID cases and the impact of COVID on Chelsea residents. Therefore, we recommend that the City take steps to integrate the analysis results into Public Health management and policy.

Data Quality:

1. Continue to monitor data quality through periodic review and data analysis.

Public Health Information and Interventions:

1. Continue to support public health messaging that even though one might be young and healthy, Chelsea residents are part of intergenerational families, and all residents must engage in collective caretaking.
2. Public health messaging must continue to emphasize the risks of social interaction.
3. The surge of cases around the holidays signifies the need to create a harm reduction strategy to educate residents on how to gather safely.
4. Residents must have regular and complete access to PPE and regular regardless of their form of employment.
5. All industries must provide PPE, encourage regular testing, and fulfill public health workplace recommendations.
6. At this point, public health messaging should expand to clarifying concerns and skepticism around the COVID-19 vaccine. The economy can only be reactivated with mass vaccination, and Chelsea residents should have priority access to the vaccine given the case rate and economic impact in the City.
7. While overall hospitalizations and mortality have decreased significantly, as have hospitalizations, at least nine families were devastated by a life cut short because of the virus. Emphasizing all Chelsea residents' collective responsibility to protect all lives is vital to prevent deaths.
8. During surges in cases the quality of data collection decreases significantly. Therefore, contact tracing systems must have reserve staff on hand to cope with increases in cases. A data review process should be activated to ensure reporting from case investigations and contact tracing.
9. Vaccine policy should be based on local trends and surges. In Chelsea´s case, less than 100 cases have been detected in those over 65 since September. Vaccine priority was given to this cohort, because of their risk of a bad outcome. This policy overlooks the data demonstrating that: 1) COVID most recent transmision is driven in Chelsea by essential workers and 2) the surge among retired folks ended over the summer.

Vaccines should also prioritize essential workers who often live in multi-generational housing with elders.

Bibliography:

Alonso, C. (2020). *Results of the Community Impact Survey*. La Colaborativa.

Bambra, C., Riordan, R., Ford, J., & Matthews, F. (2020). The COVID-19 pandemic and health inequalities. *J Epidemiol Community Health*. https://doi.org/10.1136/jech-2020-214401

Campbell, L. (2010). Los Zetas: Operational assessment. *Small Wars & Insurgencies*, *21*(1), 55–80.

CDC. (2020, June 11). *Coronavirus Disease 2019 (COVID-19) in the U.S.* Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html

CNN, O. J. (2020, May 9). *Latino communities in the US devastated by Covid-19*. CNN. https://www.cnn.com/2020/05/09/us/hispanic-population-coronavirus-impact/index.html

Dudley, S. (2011). Central America besieged: Cartels and maras country threat analysis. *Small Wars & Insurgencies*, *22*(5), 890–913.

Editorial Board, Boston Globe. (2020, June 14). Low-balling the Chelsea population threatens the state's coronavirus epicenter. *The Boston Globe*. https://www.bostonglobe.com/2020/06/14/opinion/an-undercounted-population-threatens-chelsea-states-coronavirus-epicenter/

Escarce, J. J., & Kapur, K. (2006). Access to and Quality of Health Care. In *Hispanics and the Future of America*. National Academies Press (US). http://www.ncbi.nlm.nih.gov/books/NBK19910/

Lopez, M. H., Gonzalez-Barrera, A., & Krogstad, J. M. (2018, October 25). Latino views of immigration policies in the U.S. *Pew Research Center's Hispanic Trends Project*. https://www.pewresearch.org/hispanic/2018/10/25/views-of-immigration-policy/

Massachusetts Department of Public Health. (2020). *Weekly COVID-19 Public Health Report*.

https://www.mass.gov/doc/weekly-covid-19-public-health-report-june-10-2020/download

Mijente Support Network and the Labor Council for Latin American Advancement. (2020). *The Impact of COVID-19 on Latinos*. https://assets.website-files.com/5e5f2e17e96a34dcf9b586b4/5e984eab4dd4ffba712e7906_COVID%20_%20Report%20%5BFinal%5D%20for%20web.pdf

OECD. (2020). *Panorama de la Salud: Latinoamérica y el Caribe 2020*. OECD Publishing. https://www.oecd.org/health/panorama-de-la-salud-latinoamerica-y-el-caribe-2020-740f9640-es.htm

Orozco, M. (2016). *Trump, Immigration Policy and the Fate of Latino Migrants in the United States*. 7.

Paris-Pombo, M. D. (2016). Trayectos peligrosos: Inseguridad y movilidad humana en México. *Papeles de Población*, *20*(90), 145–172.

Reininger, B. M., Wang, J., Fisher-Hoch, S. P., Boutte, A., Vatcheva, K., & McCormick, J. B. (2015). Non-communicable diseases and preventive health behaviors: A comparison of Hispanics nationally and those living along the US-Mexico border. *BMC Public Health*, *15*. https://doi.org/10.1186/s12889-015-1850-y

Stenglein, E. K. and C. (2019). How many undocumented immigrants are in the United States and who are they? *Brookings*. https://www.brookings.edu/policy2020/votervital/how-many-undocumented-immigrants-are-in-the-united-states-and-who-are-they/

The Office of Minority Health, HHS. (2019). *Profile: Hispanic/Latino Americans*. https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=64

Torres, S. A., Santiago, C. D., Walts, K. K., & Richards, M. H. (2018). Immigration policy, practices, and procedures: The impact on the mental health of Mexican and Central American youth and families. *The American Psychologist*, *73*(7), 843–854. https://doi.org/10.1037/amp0000184

US Census Bureau. (2020). *U.S. Census Bureau QuickFacts: United States*.

https://www.census.gov/quickfacts/fact/table/US/RHI725218

Von Haldenwang, C. (2005). Systemic governance and development in Latin America. *RevCEPAL*, *85*, 35–52.

Appendix 1: Table 1 Summary

	Overall (N=2239)
Gender	
Female	1136 (50.8%)
Male	1099 (49.2%)
Age	
Mean (SD)	36.3 (18.8)
Median [Min, Max]	35.0 [0, 100]
Race	
American Indian Alaskan Native	1 (0.0527%)
Asian	20 (1.05%)
Black African American	84 (4.43%)
Native Hawaiian Pacific Islander	2 (0.105%)
Other	1488 (78.5%)
White	301 (15.9%)
Hispanic	
No	421 (21.4%)
Yes	1543 (78.6%)
Ethnicity	
African / African American	28 (4.17%)
American	66 (9.82%)
Brazilian	23 (3.42%)
Cape Verdean	1 (0.149%)
Caribbean Islander	1 (0.149%)
Colombian	19 (2.83%)
Dominican	17 (2.53%)
European	4 (0.595%)

Guatemalan	66 (9.82%)
Haitian	3 (0.446%)
Honduran	80 (11.9%)
Indian	2 (0.298%)
Laotian	1 (0.149%)
Mexican / Mexican American	14 (2.08%)
Middle Eastern	4 (0.595%)
Multiple ethnicities	14 (2.08%)
Other	78 (11.6%)
Portuguese	4 (0.595%)
Puerto Rican	51 (7.59%)
Russian	1 (0.149%)
Salvadoran	192 (28.6%)
Vietnamese	3 (0.446%)
Employment	
Child/minor/infant	183 (22.9%)
Essential workers	215 (26.9%)
Non-essential workers	226 (28.3%)
Retired	55 (6.88%)
Unemployed	121 (15.1%)
Outcome	
Died	4 (0.488%)
Recovered	816 (99.5%)
Hospitalized	
No	863 (96.0%)
Yes	36 (4.00%)